REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 11-12 and 14-22 remain in the application. The claims have not been amended.

The only issue remaining in this application is the obviousness rejection over the prior art. The claims have been rejected as being obvious over Mock (EP 1079158) and Kuwajima et al. (US 2002/0048124 A1, hereinafter "Kuwajima") under 35 U.S.C. § 103.

We have carefully reviewed the rejection and the underlying argumentation in support presented by the Examiner. Respectfully, the rejection is in error. Please consider the following:

The test in Graham v. John Deere Co., 383 U.S. 1 (1966), requires that we determine the scope and contents of the prior art. If we do not properly read the prior art teachings, the following steps in the test will likely be incorrect as well. Here, we submit that the secondary reference Kuwajima has been misinterpreted. As such, we have not properly determined the scope and contents of the prior art.

Applicants, unfortunately, may be partly at fault. We had stated in our last response that Kuwajima "may be interpreted to teach an increased expansion due to the opposite voltages (bias voltage, drive voltage)" and that:

> Kuwajima applies a bias voltage to the actuator, opposite the general polarization of the actuator. This causes the actuator to contract. When the drive voltage is later applied, i.e., the voltage corresponding to the preferred polarization, the actuator is caused to expand.

Response submitted Aug. 15, 2008. We apologize for the misunderstanding and we herewith retract the statements as being incorrect. Fact is, Kuwajima does not teach such a voltage reversal and/or the application of opposite voltages.

The references teachings are as follows:

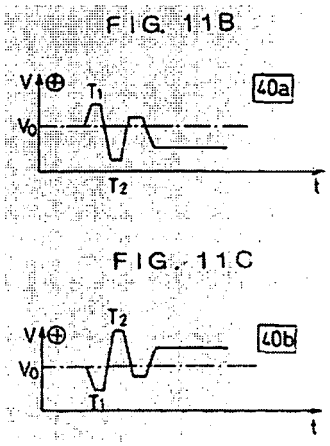
The primary reference Mock has apparently been applied correctly (the reference, of course, relates to a predecessor of the claimed invention; please note the overlapping inventorship). There, there is disclosed a method for operating an injection valve with a housing and at least one piezoelectric actuator for generating a valve lift, a movable component, such as a valve needle, and an hydraulic element forming an hydraulic bearing for play compensation between the housing and the piezoelectric actuator. These components are disposed in series in force transfer terms.

In light of the fact that Mock does not contain information relating to the biasing of an actuator, the Examiner introduced Kuwajima and combined the same with the primary teaching of Mock. A careful review of the secondary reference turns up differences between the Examiner's statements and the actual reference disclosure.

To begin with, Kuwajima does not act in "the same field of endeavor" as Mock or the claimed invention. Office action, page 3. The secondary reference deals with the positioning of a reading head in a hard disk drive. The claimed invention, in contrast, is directed to a "method for operating an injection valve," to a "control unit for generating a drive voltage for an injection valve," and to such a control unit in combination with a gasoline engine and a diesel engine.

It is important, in the context of the claimed invention, to clearly understand the terms "bias" and "polarity" and carefully read the claims with that understanding in mind. The term "bias" means that a voltage is applied, resulting in a given electrical field. The term "polarity" refers to the direction of the voltage (+ or -) or the orientation of the resulting electrical field.

Kuwajima does not contain any type of hint that a bias voltage should be applied to the piezo material that would then result in an electrical field (in the piezo material) pointed in an opposite direction as the preferred polarity of the piezo material.



Reference is had to Figs. 11B and 11C in Kuwajima. The voltage diagram of Fig. 11B pertains to one of the thin-film piezoelectric elements, while Fig. 11C pertains to the other one. The voltages are mirror symmetrical. The voltages, however, are in no case voltages that are opposite the polarity of the preferred polarity of either of the two piezo elements. The voltage level V_0 is not a zero value. Instead, the voltages 40a and 40b are both in the positive domain. Here, the

"positive" domain is with respect to the preferred polarity of the respective piezo element.

Reference is further had to Kuwajima's disclosure on page 4, paragraph [0052] and on page 11, paragraph [0155]. The latter explains:

> [0155] When the head 60 has a positional deviation from the target track . . . the voltage control is carried out in such a manner that, in period T. shown in FIG. 11B and FIG. 11C, the applied voltage to the first thin-film piezoelectric element 40a increases with respect to the bias voltage Vo and in synchronism with this, the applied voltage to the second thin-film piezoelectric element 40b reduces with respect to the bias voltage Vo. Thus, the head 60 is returned inside in the radial direction . . . .

Kuwajima, page 11, paragraph [0155] (emphasis added). It is thus clear that the reference teaching does not reverse the polarity between the times T1 and T2 and that the voltage Vo is only a bias voltage (raised above zero) but not a reverse voltage.

Kuwajima's bias voltage only serves the purpose to prevent an electric field that would oppose the preferred polarity of the piezo elements. If anything, the reference quite teaches against applicants' claimed solution.

In either case, Kuwajima does not fairly suggest expanding the useful range of the piezo element with regard to the maximum deviation that may be achieved.

Claim 11, by way of example requires a step of "biasing the actuator with a bias voltage having a polarity opposing a preferred polarity of the actuator, to thereby cause a preliminary contraction of the actuator." The drive voltage, which is then

applied in a step as recited in the following paragraph of claim 11, has a polarity that corresponds to the preferred polarity of the actuator. In other words, the bias voltage has a polarity that is the opposite of the polarity of the drive voltage.

Further reference is had to claim 12, in which applicants further detail the relative "value" of the bias voltage. That is, the value of the "negative" bias voltage does not exceed a value that would flip the polarity of the actuator.

We respectfully submit that the claims are patentable over the art of record. A Notice of Allowance is respectfully solicited.

Please charge any fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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